

**TEACHERS' MANUAL, OR, THE
BEST METHOD OF TEACHING
THE NATURAL HISTORY OF
INJURIOUS AND BENEFICIAL
INSECTS**

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Teachers' Manual, Or, the Best Method of Teaching the Natural History of Injurious and beneficial insects by Matthew Cooke

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MATTHEW COOKE

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THE BEST METHOD OF TEACHING
THE NATURAL HISTORY OF
INJURIOUS AND BENEFICIAL INSECTS

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PREFACE.

This volume, in conjunction with my work entitled **INSECTS, INJURIOUS AND BENEFICIAL**, is intended to afford an opportunity for study of the Natural History of Injurious and Beneficial Insects to those who have not had the advantages of a classical education.

M. C.

When written: 1860

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TO TEACHERS OR STUDENTS.

The illustrations given in the text book, "Insects, Injurious and Beneficial," number nearly seven hundred, and may be classed as follows :

1st. Illustrations representing the insect, etc., about the natural size. Examples: Figs. 4, 9, 16, 17, 19, etc.

2d. Illustrations representing the insect, etc., enlarged. Examples: Figs. 15, 20, 38b, 41c, etc.

The accompanying lines in these illustrations indicate the natural length of the insect. The cross-lines, as in Figs. 185, 188, 189, etc., indicate the natural length of body and spread of wings, etc.

3d. Enlarged illustrations of minute insects, etc., the natural size of which cannot be given by lines; the natural length is given here in fractions of an inch. Examples: Fig. 5, 1-30; Fig. 10, 1-50; Fig. 13, 1-40; Fig. 29, 1-20; Fig. 42, 1-22; Fig. 305, 1-25.

4th. Enlarged illustrations, in which the lines indicating the lengths of insects are absent; Fig. 46, 4 to 16 lines (see Glossary*); Fig. 47, 4½ to 6 lines†; Fig. 56, 1 line†; Fig. 63, 2 to 7 lines†; Fig. 64, 6 lines†; Fig. 129, highly magnified; Figs. 186, 187, 333 and 334, about size indicated by cross-lines in Fig. 188. Fig. 264, 1½ to 2 lines†; Fig. 306, 1 to 3 lines†.

5th. Illustrations in which the enlarged and natural sizes of insects are given. Examples: Figs. 12; 24, 1 and 3; 135; 157, 1 and 3; 164.

6th. The student should be required to comply with the following rules:

First.—To give answers to all questions in writing, except such as are required to be memorized.

Second.—To learn to draw on blackboard, etc., the appendages of the head, thorax and abdomen of insects.

Third.—When commencing the study, to learn only the common names of insects and their several parts, except the technical names not enclosed in brackets.

Fourth.—When reviewing the work, to learn the technical names inclosed in brackets. (See table of technical names.)

TEACHERS.

In schools where my book, "Injurious Insects of the Orchard," etc., is in the library, the teacher should consult it and teach, orally, the remedies given for the extermination of injurious insects. Example: on page 65 of text book, Fig. 196 represents the Achemon Sphinx. On page 179 of the former can be found a description of this species, and Remedies Nos. 14, 33, 100 and 101 are given.

This course should be followed in all public schools, regardless of other study of natural history, on account of the importance of the subject upon various branches of industry of the State.

TEACHERS' MANUAL.

CHAPTER I.

Question—What does the Science of Entomology teach?

Answer—The natural history of insects.

Q.—By what name are the divisions of the Realm of Nature known? A.—Kingdoms.

Q.—Into how many Kingdoms is the Realm of Nature divided? A.—Three.

Q.—Name them? A.—Animal, Vegetable and Mineral.

Q.—Name some specimens belonging to the Animal, Vegetable and Mineral kingdoms?

Q.—Into how many sub-kingdoms is the Animal kingdom divided? A.—Four.

Q.—Name them? A.—1st, Back-boned Animals (Vertebrata); 2d, Jointed Animals (Articulata); 3d, Soft-bodied Animals (Mollusca); 4th, Star Fishes (Radiata).

Q.—What characterizes the Animals belonging to each of the four sub-kingdoms of the Animal Kingdom?

Q.—To what division of sub-kingdoms do Insects belong? A.—To the second, or Jointed Animals.

Q.—What is meant by *Articulata*?

Q.—By what terms are the divisions of the sub-kingdom which comprise the Jointed Animals known? A.—Classes.

Q.—Into how many classes is the sub-kingdom divided? A.—Five.

Q.—Name them?

Q.—Wherein do Animals described in each class differ from each other? A.—In the number of legs they possess.